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Division of Local Services

ANALYZING A PROPERTY VALUATION PROGRAM

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ANALYZING A PROPERTY VALUATION PROGRAM - CORE METHODOLOGY

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Before deciding to make changes to any property valuation program, the current program should be evaluated using a "core" of basic mass appraisal techniques. These are as follows:

1. The level of assessment demonstrated to be at "full and fair cash value".

2. Be based on accurate property inventory data

3. Be derived using acceptable, documented appraisal methodology

4. Be uniformly applied to all types, classes, and styles of property

REQUIREMENT 1 - LEVEL OF ASSESSMENT

In evaluating the level of assessment, two basic techniques are commonly used:

1. Assessment - sales ratio studies
2. Assessment - appraisal ratio studies

I. Assessment-Sales Ratio Studies

Assessment - sales ratio studies (ASR's) are utilized to evaluate one to three family residential property, condominiums, and residential vacant land, when a sufficient number of sales exist in the community. It is recommended that the assessor use at least 10 sales in any study. Only "valid", arm's length sales should be used in a ratio study.

The following general property groups should serve as the starting point for the ratio study:

Description of Group	State Use Code
Single family residential	101
Condominiums	102
Two Family	104
Three Family	105
Developable Land	130
Potentially Developable Land	131
Undevelopable Land	132

If there is an insufficient number of sales for a particular group, certain categories or groups of properties might be combined to enhance the analysis. For example, use codes 130 through 132 might be combined for analytical purposes.

Next, properties should be stratified to create subgroups for analysis. The following subgroups should be analyzed, if sufficient sales are available:

- neighborhoods
- building styles
- building age groups
- building size groups
- by sale month
- locational groups (waterfront, waterview, etc.)

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For each group analyzed, a spreadsheet should be developed for analytical purposes. It should contain the following minimum level of information:

Date of analysis
Criteria which identifies the group (i.e. class 101 ranches)
parcel identifier (tax map #, etc.)
Street address
Sale date
Sale price
Assessed value
Assessment/sales ratio
Median ratio for the group
Absolute dispersion (about the median)
Coefficient of dispersion for the group

At the conclusion of the analysis, the results of all the individual ratio studies should be summarized in a tabular format. The summary should indicate the the type of property analyzed, the number of sales in the group, the median ratio for the group, and the coefficient of dispersion for each group.

In the following example, the assessor has first conducted ratio studies on three groups of properties: single family (101), two family (104), and condominiums (102). The results are tabulated in the following manner:

Property Type	Use Code	# of Sales	Median Ratio	COD
Single family	101	60	93.0%	8.5%
Two family	104	20	92.3%	9.5%
Condominium	102	40	104.0%	6.0%

Prior to making any firm conclusions, it should be determined whether further stratification of data is justified. In this example, there are 60 single family sales, which can be divided into three neighborhoods. In addition, there are two distinct condominium developments, Maple View and Dana Shores. All of these sub groups have a sufficient number of sales for the analysis.

Using these additional groups, further ratio studies are conducted, with the following tabulated results:

Type	Sub Group	Use Code	# of Sales	Median Ratio	COD
Single family	ALL	101	60	93.0%	8.5%
	neighborhood 1	101	20	92.0%	8.1%
	neighborhood 2	101	15	88.0%	9.2%
	neighborhood 3	101	25	96.0%	8.1%
Two family		104	20	92.0%	9.5%
Condominium	ALL	102	40	104.0%	6.0%
	Maple view	102	25	93.0%	6.0%
	Dana Shores	102	15	123.0%	6.0%

Utilizing the results of the analysis, conclusions can be formulated. If the second level of analysis was not conducted, it might have been concluded that all condominiums were assessed in excess of fair market value, and that all single family property is uniformly assessed. By stratifying into more refined groups, the it was found that while the condominiums in "Dana Shores" are assessed in excess of full and fair cash value, those in "Maple View" appear to be in line with the largest numbers of single family property. In addition, it has been determined that there may be a problem in neighborhood 2, whose level of assessment is below the typical for its class. The assessor may want to adjust the assessments of these groups of properties to bring them closer to the two basic requirements in MGL Chapters 40 and 59.

II. Assessment-Appraisal Ratio Studies

For classes or groups of properties that do not regularly sell in numbers sufficient to conduct an assessment - sales ratio study, the assessors should conduct an assessment - appraisal ratio study. This type of analysis may typically be required for:

Commercial properties
Industrial properties
Apartments
Mixed Use
Land (where land sales are not available)

The first step in conducting assessment - appraisal ratio studies is to stratify the types of properties to be analyzed. For example:

Office buildings
Retail
Warehouses
Motels

The number and type of groups are dependent on the nature of the community. Groups should be created that produce a "representative sample" of properties in the town or city. It may be necessary to further stratify these basic groups. For example, within the "retail" group, the following sub groups might be warranted:

Downtown retail
Strip commercial
Shopping centers

While it is not typically necessary to analyze each parcel, all significant types of properties should be included in the sample.

Unlike the assessment - sales ratios, the assessment - appraisal ratio study involves the collection and analysis of the basic components of value, and the reappraisal of properties using the new data. If the income approach was one of the valuation methods utilized, the data typically required to conduct this study includes:

Rent schedules
Vacancy rates
Expense ratios
Capitalization rates

For properties in which the Department's guidelines require the use of two approaches to value, the appraiser should utilize the second approach in the analysis as well as the income approach.

If the cost approach is one of the valuation methods utilized, the following elements should be carefully reviewed and analyzed:

Cost manual utilized
Derivation or calibration of time/location factors used
Depreciation tables, factors
Obsolescence factors

By reappraising a sample of properties, a determination can be made as to whether that group or class is assessed at, below, or above full and fair cash value.

In the following example, a representative sample of so-called Strip Commercial properties in the community was created. Collecting the necessary data, an appraised value is estimated for each of the sample properties. These "Updated" appraised values are then compared to the actual assessed values. An informed, documented decision concerning this group of properties can then be made.

Property Type: Strip retail

Property Address	Assessed Value	Updated Appraised Value	Ratio
10 Main Street	$250,000	$225,000	90.0%
15 Main Street	$300,000	$275,400	91.8%
22 Main Street	$425,000	$405,000	95.3%
35 Main Street	$390,000	$380,200	97.5%

ACCURACY AND RELIABILITY OF DATA ANALYSIS

The statistical analysis of real estate markets, a critical part of the mass appraisal process, is far from an exact science. Even the highest level of analytical skills, and use of high quality data may yield uncertain results. Assessors considering modifications to property appraisals should consider the following points:

1. The validity and accuracy of any real estate market analysis program is dependent on the use of verified, accurate data. Studies made with unverified sales or property descriptive data is unreliable, and conclusions made from such analysis may be faulty and misleading.

2. The reliability of the results of any ratio analysis is dependent on the "sample size". The more sales or appraisals analyzed, the more confident the assessor can be that the results reasonably reflect true market conditions. Conclusions made from small samples are likely to be unreliable.

3. The lower the measure of dispersion computed in the study (Coefficient of Dispersion, Coefficient of Variation, standard deviation), the more confident the assessor can be that the results actually "mirror" the market. High measures of dispersion generally indicate that conclusions made from the analysis may not be reliable.

4. The samples chosen to study (either sales or appraisals) should be representative of the class of property being analyzed. The make-up of the groups studied should be representative of the community as a whole.

5. The analysis of homogeneous groups (stratification) is one of the keys to successful real estate market analysis. Attempting to categorize diverse properties into a single group will increase the likelihood of unsatisfactory results.

6. The results of the market analysis should be carefully reviewed in its entirety before conclusions are made. Measures of dispersion, such as coefficient of dispersion (COD), standard deviation, and coefficient of variation (COV) should be carefully monitored. A high COD may indicate that further analysis, or even complete revaluation of a type of property is needed. Large differences in assessment ratios between various types or classes of property may indicate a need for a more comprehensive analysis or revaluation decision.

7. Statistical studies, ratio analysis, etc. are tools that can assist the appraiser in formulating opinions concerning market value. They should not be a substitute for appraisal knowledge, experience, judgment, and hard work.

Requirement 2 - Accuracy of Property Data

The quality of any valuation program is directly correlated with the accuracy of the property related data used in the valuation process. Regardless of the type and quantity of data used, and the type of data collection program utilized by the community, assessors must positively measure the accuracy of the data prior to any valuation program, whether or not valuation changes are planned. The following points should be considered when analyzing data quality and designing data collection programs:

1. Age of existing property data (when was data last collected). As the age (date since the last data collection) of the data increases, the quality tends to decrease. General changes in neighborhoods, undocumented building renovations and repairs, the natural aging process, etc. all contribute to data that does not accurately reflect the up to date condition of property. Experience has shown that data that has not been actively maintained tends to become unusable after 9 to 12 years, and must be recollected.

2. Who conducted the last property inspection program? If the data was collected by people with relatively little field experience, its useful life may be short. Data collected without adequate supervision may have a very limited lifespan.

3. The nature of the last property inspection program. Was the last property inspection program a complete "measure and list", or a partial inspection program? What was the entry rate for interior inspections.

4. The nature of property in the community. Certain types of properties require frequent reinspection, due to both positive and negative changes in neighborhoods, renovation programs, etc. Other types of property may need less frequent inspections, due to the "standardization" of property characteristics, etc.

5. Results of data quality studies. Assessing officials should periodically conduct full or partial data quality studies to positively determine and measure the accuracy of data. Data quality studies are conducted by measuring and listing representative samples of properties in the community, recording, classifying, and tabulating the errors found, and comparing the effect of errors by comparing the assessed value computed from the "old" data with that resulting from the "new" data. Many communities can combine the data quality study with their building permit inspection program, and/or the sales verification program, by fully inspecting all appropriate properties.

6. Description of ongoing data collection programs. The collection of property data is typically the most expensive part of any revaluation program. Unfortunately, if not properly maintained, the property database will "depreciate" over time. Just as we maintain valuable equipment through oil changes, repairs, etc., assessors can maintain their data by regularly and periodically reinspecting their data over a number of years. By breaking down the inspection program over 3, 6, or even 9 years, assessors can ensure accurate assessments, while avoiding the major expense of a full inspection program. For example, a community of 5,000 parcels would be facing a reinspection cost of $100,000 to $200,000 if data quality is left to deteriorate to where a "full measure and list" is required. A regular data quality study, and property reinspection program, started immediately after the last reinspection program, could call for inspecting 500 parcels per year over a 10 year period.

GUIDELINES

Adjustments to values in a community must be based on a comprehensive, in depth study of market conditions in a community. Detailed, stratified ratio studies, utilizing verified data is key to the development of such a program. Adjustments to value can not be supported by undocumented perceptions or rumors. While a change in the volume of sales, or a change in the length of time a property is on the market before sale may be indicative of relative strength or weakness in market segments, these conditions by themselves do not warrant modifications to the valuation program.

Once the Board has sufficiently monitored the market and analyzed the sale prices, appraised values, and/or valuation components of various property classes and types, and determined the necessity of reassessing properties in order that valuations will be more reflective "full and fair cash value", certain conditions and procedures must be met. These conditions include:

1. The reassessment of properties to reflect full and fair cash values should result in values which are consistent within each property class relating to the level and the uniformity of the resulting figures. Additionally, the resulting values must be consistent between property classes for both the level of assessment and the uniformity of assessments. This ensures equity between property classes as well as within parcels of a specific property class.

2. Determine what Department of Revenue requirements are appropriate for the type of program being proposed.

3. Develop and obtain approval, if necessary, of a plan which meets the basic requirements noted above, along with any other requirements established by the Commissioner of Revenue.